



Holdrege Urban Area - COVID-19 Status Report 13 Nov 2020

Background

The Two Rivers Public Health Department (TRPHD) covers 7 counties in central Nebraska, reaching 97,132 people who live and work in the health district spread across roughly 4663 square miles. Over three quarters of residents live in Buffalo and Dawson county, a tenth live in Phelps county, and the remaining 15% is spread somewhat comparably among the four counties of Kearney, Harlan, Franklin and Gosper in decreasing order of population. The largest urban areas are Holdrege (~5439 people), Lexington (~10,024 people), and Kearney (~33,835 people), meaning that over half of the residents of TRPHD live in three urban areas, and over a third live in Kearney city alone.

To better understand COVID transmission in TRPHD¹, we decided to analyze case numbers in Kearney, Lexington and Holdrege, defined as the city and surrounding smaller towns

- “Kearney area” includes Kearney city, Elm Creek, Pleasanton, Amherst, Riverdale, Gibbon, Shelton and Axtell.
- “Lexington area” includes Lexington city, Overton, Johnson Lake and Cozad.
- “Holdrege area” includes Holdrege city, Loomis and Funk.

In the fifth edition of this document, we will

- a) Look at the overall course of the COVID-19 pandemic in TRPHD from **April - November** (33 weeks) and identify the outbreaks in each of the three urban areas.
- b) Analyze data from **July 01 - November 10** (19 weeks) to see daily rolling average of cases across the 7 counties in Two Rivers Health District.
- c) Describe 7-day rolling average of cases in Holdrege area by age and city of residence from **July 01 - November 10**.
- d) We will also describe average daily positivity rates in Phelps in the past 19 weeks, comparing it to Dawson, Buffalo and the state of Nebraska²
- e) Describe the progress of COVID-19 cases from **Oct 14 - Nov 10** (4 weeks) across cities in Franklin, Gosper, Harlan, Kearney and Phelps counties.
- f) Present a brief weekly overview and analysis for Holdrege

In summary, Holdrege city and Holdrege urban area are witnessing a sustained increase in daily average COVID-19 case numbers since the beginning of October. The rate of increase of cases in the past week is steep, indicating a possible further rise in daily reported cases. Positivity rates in Phelps county have tripled in the past month and now amount to one and a half time the statewide average for Nebraska. Case counts seem to be increasing in a step-ladder pattern, indicating a possible surge in cases in the coming weeks. Residents are advised to avoid unnecessary travel and adhere to strict preventive measures (social distancing, correct and consistent masking) at all times to protect themselves.

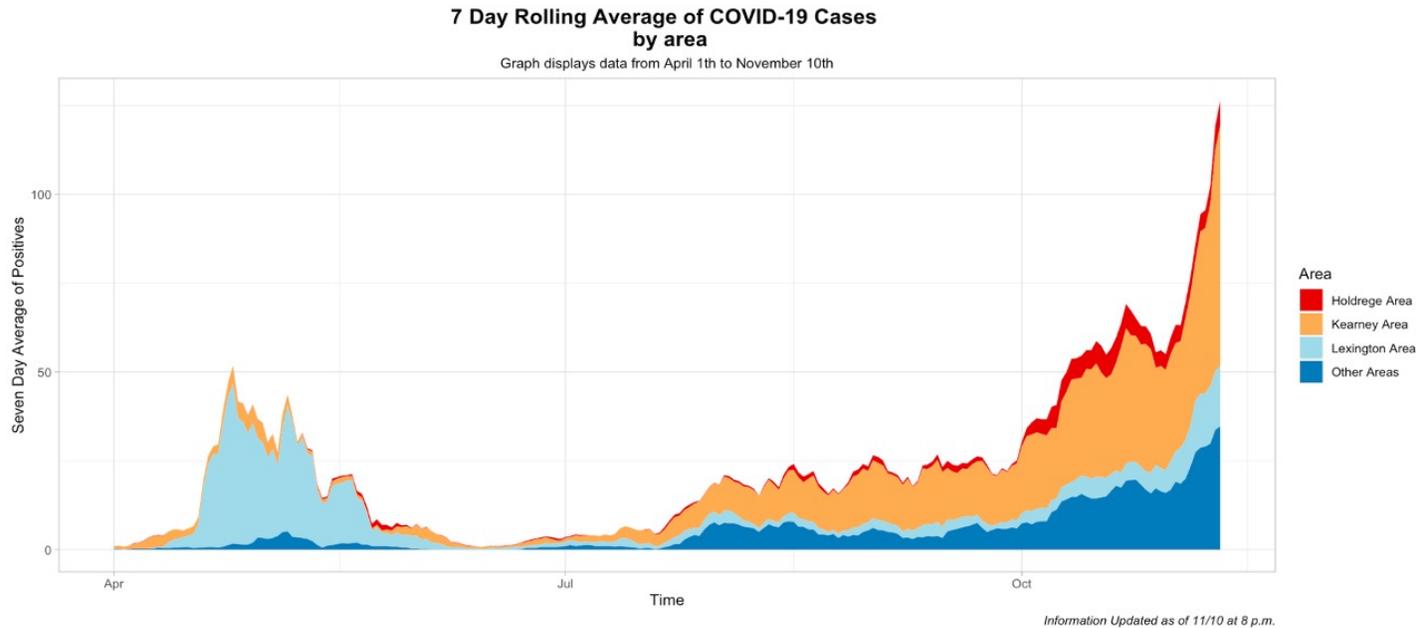
¹ For complete explanation of definitions and data sources, please see appendix 1

² For data about Nebraska and other states COVID-19 testing and cases, visit the covid tracking project:

<https://covidtracking.com/data>

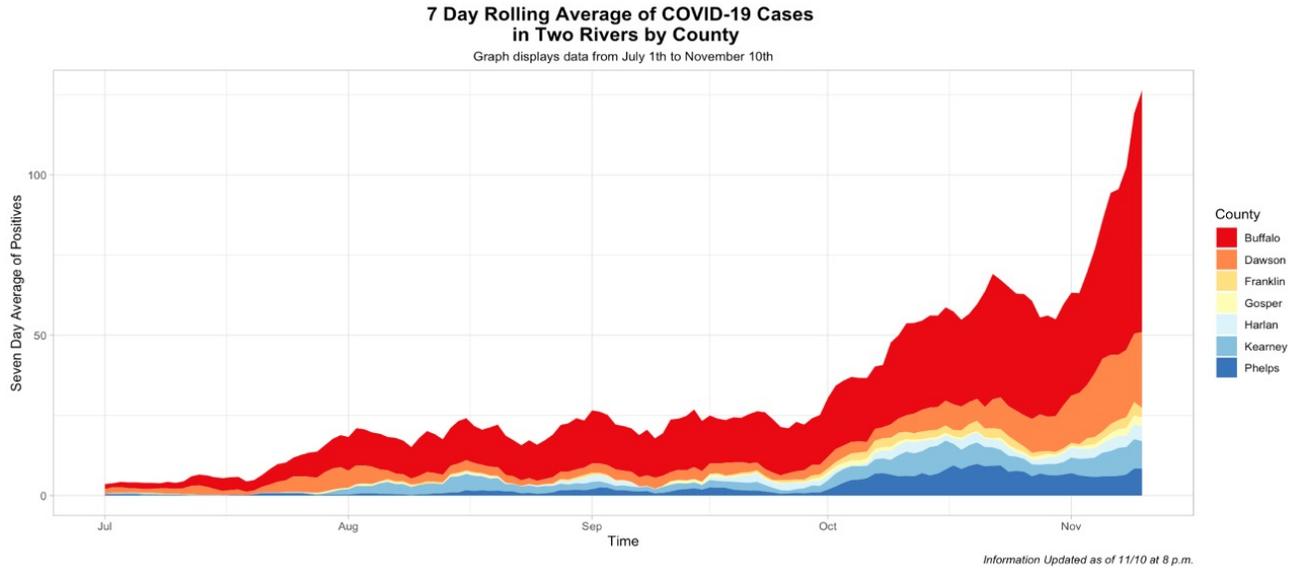


- The graph below describes daily COVID-19 cases in TRPHD from **April 1 – November 10** broken down by urban area (**Holdrege**, Lexington, Kearney and all others). The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the urban area.

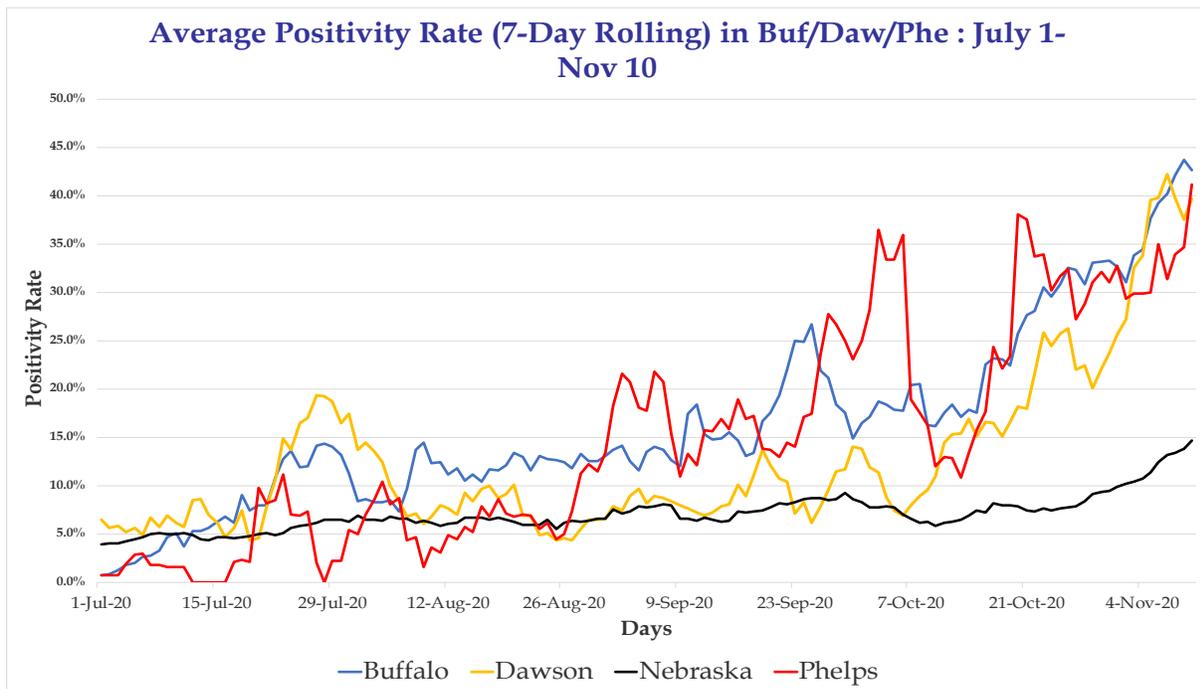




- The graph below describes the daily caseload across all 7 counties of TRPHD from **July 1 - November 10**. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the county numbers.



- The graph below describes average daily positivity rates (7-day rolling) from **July 1 - Nov 3** in Buffalo, Dawson, **Phelps** and Nebraska

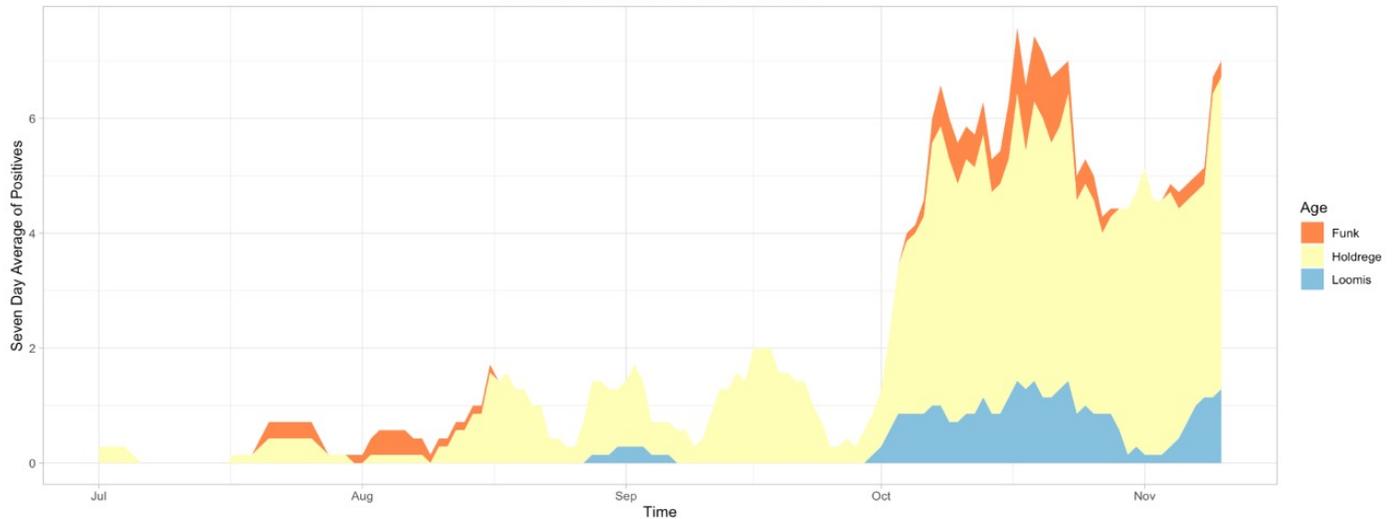




- The graph below shows COVID-19 cases in **Holdrege** area from **July 1 – November 10**, describing positive cases by city. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to a city's contribution.
- The second graph describes cases by age during the same period in the **Holdrege** area.

7 Day Rolling Average of COVID-19 Cases by City

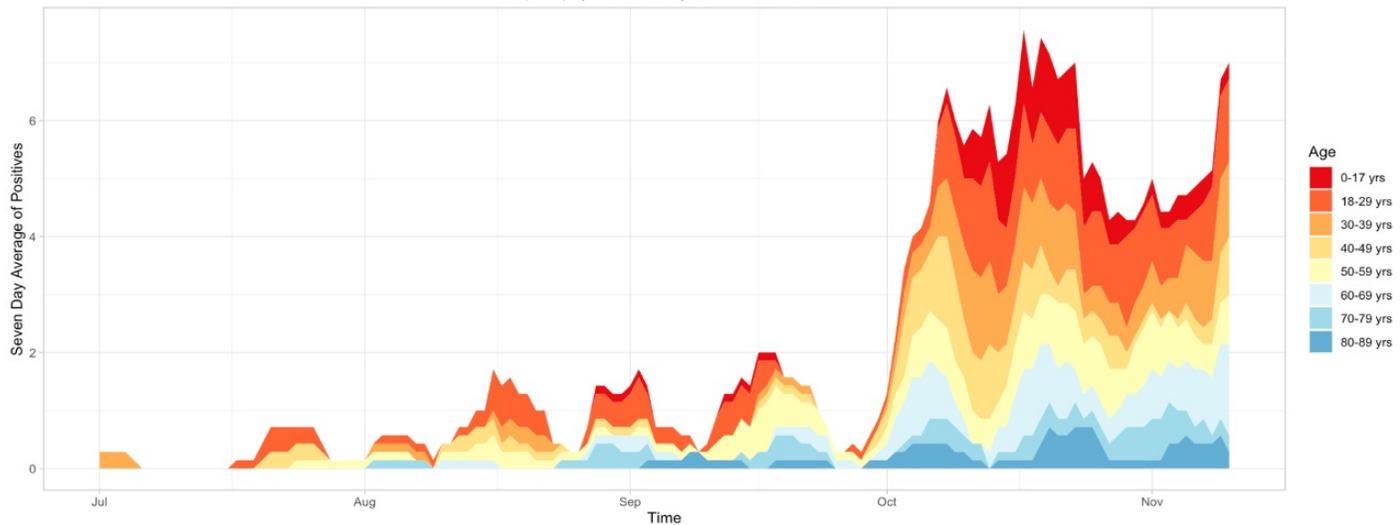
Graph displays data from July 1th to November 10th



Information Updated as of 11/10 at 8 p.m.

7 Day Rolling Average of COVID-19 Cases by Age in Holdrege Area

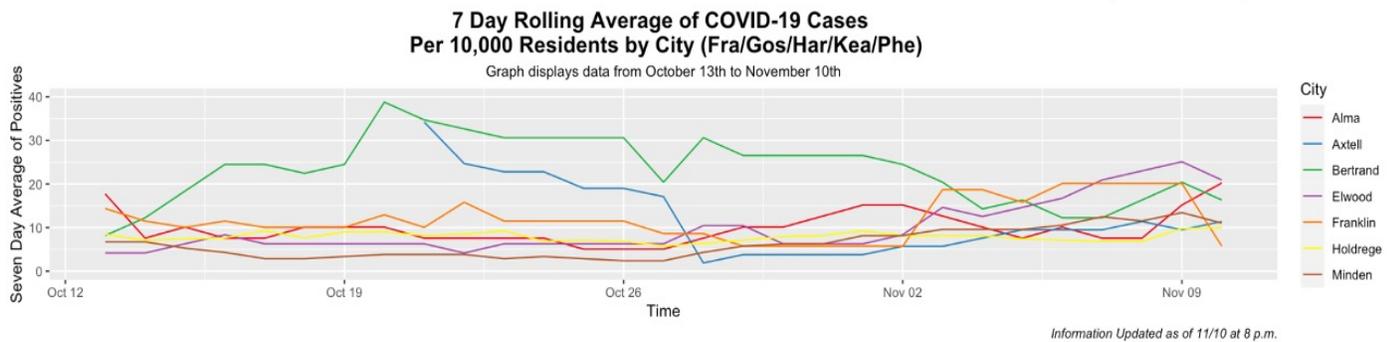
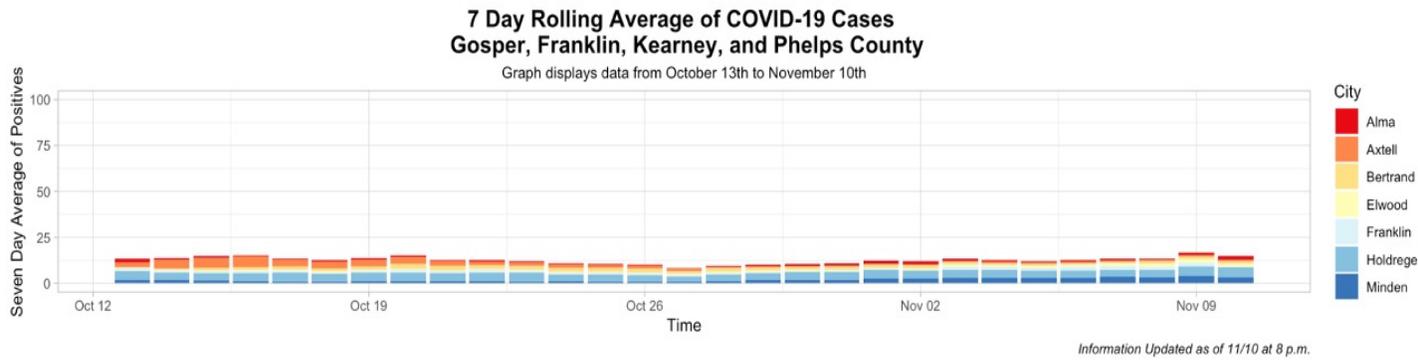
Graph displays data from July 1th to November 10th



(Holdrege area includes Holdrege, Loomis, and Funk)



- The graph below shows COVID-19 cases across 9 cities in TRPHD from **Oct 14 – Nov 10**. **Holdrege** is shown along with other cities in Franklin, Gosper, Harlan, Kearney and Phelps counties. The height of the bar corresponds to the daily case count and the thickness of each colored band corresponds to a city's contribution.
- The second graph describes cases per 10,000 residents in the same cities during this time period. ³ The line showing Axtell's per-100,000 rolling average has been edited to better display other cities.



³ Note: We have used 10,000 residents as reference population to better compare cities across the district.



Weekly Summary Report

Viewing the graphs from **April – November**, some broad trends are noticeable:

- Holdrege witnessed a surge in daily cases about 4 weeks back which subsided for a while and has now returned to earlier levels.

On analyzing graphs of COVID cases from **July – November**, some details become clear:

- Daily caseloads seem to be fluctuating across different weeks in Phelps counties; cases have shown an upward trend in the past two weeks.
- Positivity rates in Phelps have more than **tripled** in the past four weeks, and the gain in daily average rates seems to be sustained over the past 14 days.
- Daily case counts across the Holdrege urban area have more than **tripled** since early October, and a majority of those cases were in Holdrege city.
- The rate of increase of cases in the past week is precipitous, and indicates the possibility of increased daily case counts in the Holdrege area in the weeks ahead.
- Cases among persons aged 60 years and over has shown a dramatic spike. This age group now accounts for **over a third** of all cases in the Holdrege area.
- The progression of cases in Holdrege shows a stepladder pattern of growth that was earlier observed in the Kearney area. If the outbreak in Holdrege follows a similar pattern, daily case counts may rise rapidly in the upcoming weeks.

On analyzing graphs of COVID cases from **October – November**, we are able to observe the following:

- Case rates per 10,000 populations in Holdrege have remained steady over the past 4 weeks.
- Although daily case rates dipped about three weeks previously, they are now close to the highest daily number recorded in Holdrege area since April.

In summary, Holdrege city and Holdrege urban area are witnessing a sustained increase in daily average COVID-19 case numbers since the beginning of October. The rate of increase of cases in the past week is steep, indicating a possible further rise in daily reported cases. Positivity rates in Phelps county have tripled in the past month and now amount to one and a half times the statewide average for Nebraska. Case counts seem to be increasing in a step-ladder pattern, indicating a possible surge in cases in the coming weeks. Residents are advised to avoid unnecessary travel and adhere to strict preventive measures (social distancing, correct and consistent masking) at all times to protect themselves.



APPENDIX 1

Methods & Definitions

To better understand the course of the COVID-19 pandemic in Kearney, Lexington and Holdrege, we created ‘urban areas’ that included both the city and its surrounding towns. We included all towns within 20 miles of Kearney city, 15 miles of Lexington and 10 miles of Holdrege within each city’s urban area. The respective populations of all 7 counties in TRPHD are shown below. Kearney city accounts for over third of the population of TRPHD.

County	Population
Buffalo	49,659
Dawson	23,595
Franklin	2,979
Gosper	1,990
Harlan	3,380
Kearney	6,495
Phelps	9,034
TRPHD total	97,132
Nebraska state	1,934,408

Thus “Kearney area” includes Kearney city as well as Elm Creek, Pleasanton, Amherst, Riverdale, Gibbon, Shelton and Axtell.

“Lexington area” includes Lexington city as well as Overton, Johnson Lake and Cozad.

“Holdrege area” includes Holdrege city, Loomis and Funk.

For presenting data, we selected 3 time frames:

- a) April 1 - Nov 10 (From the beginning of the pandemic to current)
- b) July 01 - Nov 10 (From the beginning of second sustained ‘wave’ in daily case counts to current)
- c) Oct 14 - Nov 10 (Previous 4 weeks)
 - Data is presented as 7-day rolling averages for daily numbers and absolute counts for cumulative cases. The 7-day rolling average is simply the sum of all cases for that day and the previous six divided by 7.
 - Cumulative cases refer to all cases that have been confirmed in the district since the beginning of the pandemic in TRPHD (March 19)
 - Average positivity rate refers to a seven-day rolling average positivity rate, which is the sum of all cases for that day and the previous six divided by the sum of all tests done in that day and the previous six
 - In cases that call for comparison across different areas (counties v/s state of Nebraska, for eg), we present the count per 100,000 population(except when explicitly stated). For calculation, we use the 2019 mid- year estimate (American Community Survey, ACS) and data from The Atlantic’s COVID tracking project (<https://covidtracking.com/data>)